National Aeronautics and Space Administration

MARSHALL STAR

Serving the Marshall Space Flight Center Community

June 10, 2010

Shuttle Atlantis completes 25 years of NASA missions

Space shuttle Atlantis

From combined reports

Space shuttle Atlantis completed its 32nd and final planned mission May 26, landing at Kennedy Space Center, Fla. Commander Ken Ham and Pilot Tony Antonelli were at the controls returning the orbiter to its home port for what is planned to be the last time.

"She's a great ship," Antonelli said hours after landing, adding that it was a "real honor" to be on what may be its last flight. "We're happy to bring her back home to Florida."

During its 25 years of spaceflight, Atlantis completed 32 missions and traveled more than 120 million miles.

Atlantis launched May 14 on the STS-132 mission with a six-person crew on a journey to deliver a new Russian module

*See **Atlantis** on page 4*

See page 2 for details on the Marshall Employee Family Picnic this weekend!

NASA's FASTSAT satellite readies for shipment to Alaska

By Kim Newton

NASA has successfully completed a comprehensive pre-shipment review of the Fast, Affordable, Science and Technology Satellite – or FASTSAT – a small, microsatellite class spacecraft bus that will carry six experiment payloads to low-Earth orbit.

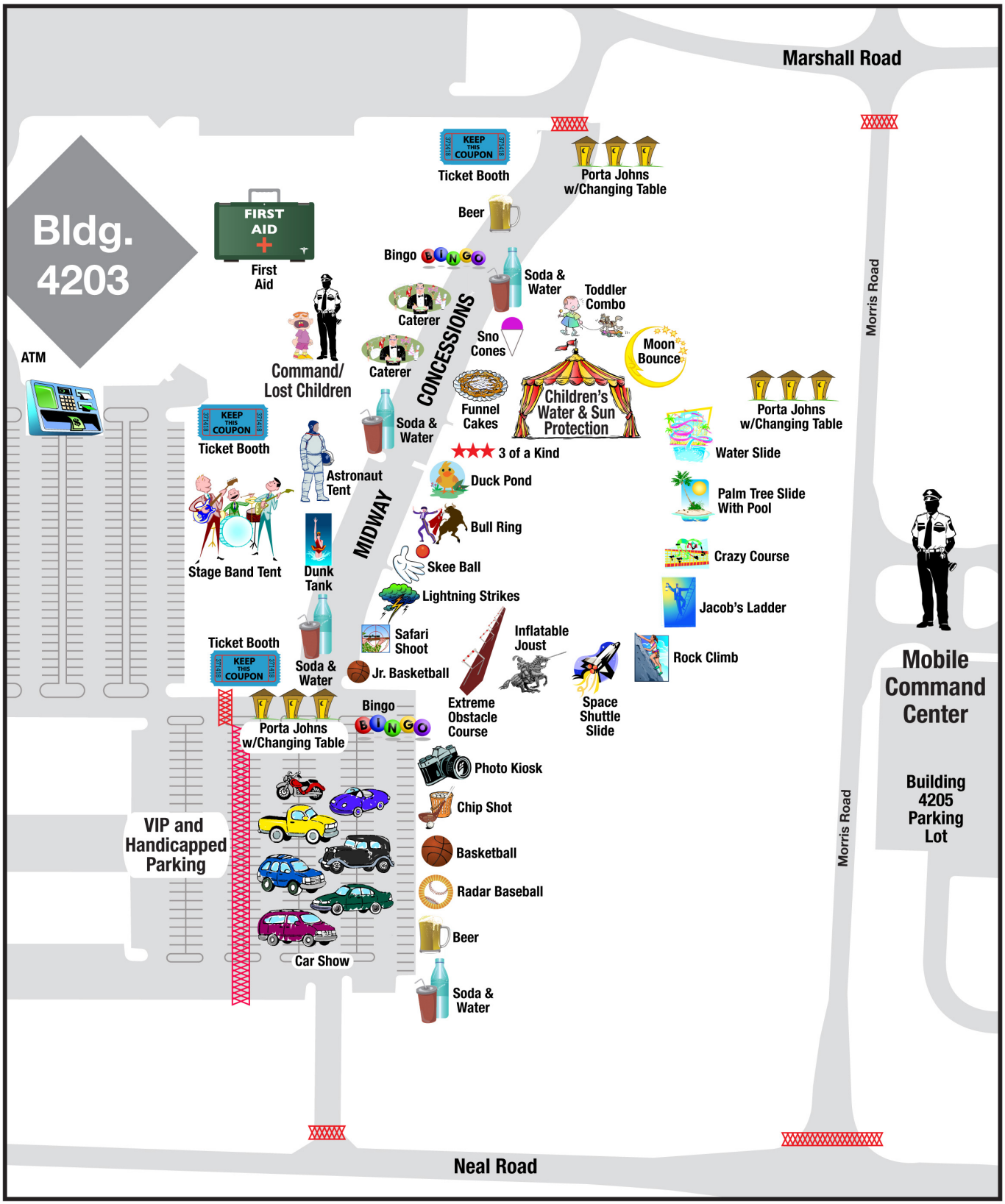
The pre-shipment review was completed in May, demonstrating the flight hardware has successfully passed all environmental and performance tests and is authorized for shipment to the launch site for final integration on the Minotaur IV launch vehicle, built and operated by Orbital Sciences Corp. of Dulles, Va.

Engineers will pack the satellite into a shipping container for delivery in early

*See **FASTSAT** on page 6*

Marshall team readies for June 12 family celebration

Civil service employees, retirees, badged contractors and their families will gather June 12 for the Marshall Employee Family Picnic, from 10:30 a.m. to 3 p.m. on the east side of Building 4203. Use this convenient map to identify points of interest across the picnic area, and visit Inside Marshall for full details on the event. See you there!



NASA, Marshall honor those who serve and achieve


David Higginbotham/MSFC

Lynn Cline, deputy associate administrator for Space Operations at NASA Headquarters in Washington, addresses awards recipients, their guests, and members of the Marshall Space Flight Center team at the annual NASA/Marshall Honor Awards ceremony June 3 in Morris Auditorium.


David Higginbotham/MSFC

Honorees file into the auditorium to enjoy music, videos and congratulatory remarks by Marshall Center leaders. Two ceremonies – NASA honor awards in the morning, center-level awards in the afternoon – celebrated team members who made exceptional contributions to the work of Marshall and the agency.


David Higginbotham/MSFC

Among the hundreds honored during the ceremony was Jonathan Pettus, director of Marshall's Office of the Chief Information Officer. Pettus received the Presidential Rank of Distinguished Executive award, which recognizes senior federal employees who demonstrate integrity and commitment in the execution of their government duty.

In celebration of Marshall's 50th anniversary

'The Chandra X-Ray Telescope' video to play in Heritage Gallery this week

As part of the 50th anniversary of the Marshall Space Flight Center, the Marshall History Office is showing a series of videos throughout the year related to the history of the center. The films will cover Mercury-Redstone, Saturn, Skylab, Apollo, space shuttle, International Space Station and more. Each video will run for one week in the Heritage Gallery in Building 4200 from 8 a.m. to 5 p.m.

This week's film is titled "The Chandra X-Ray Telescope."

Atlantis *Continued from page 1*

and several critical spare parts to the International Space Station.

Construction of the orbiter Atlantis began in March 1980. Thanks to lessons learned in the construction and testing of orbiters Enterprise, Columbia and Challenger, Atlantis was completed in about half the man-hours required to construct and test Columbia. This is largely attributed to the use of large thermal protection blankets on the orbiter Atlantis' upper body, rather than the use of individual tiles, which require more attention.

Weighing 151,315 pounds when it rolled out of the assembly plant in Palmdale, Calif., Atlantis was nearly 3.5 tons lighter than Columbia. The new orbiter arrived at the Kennedy Space Center in April 1985, and during the next seven months was prepared for her maiden voyage.

Like her seafaring predecessor, orbiter Atlantis has carried on the spirit of exploration with several important missions of her own. On Oct. 3, 1985, Atlantis launched on her first mission, STS 51-J, with a classified payload for the U.S. Department of Defense.

Atlantis also served as the on-orbit launch site for many noteworthy spacecraft, including planetary probes Magellan and Galileo, as well as the Compton Gamma Ray Observatory. An impressive array of onboard science experiments took place during most missions to further enhance space research in low-Earth orbit.

Beginning with STS-71 in June 1995, Atlantis pioneered the Shuttle-Mir missions, flying the first seven missions to dock with the Russian space station. When linked, Atlantis and Mir together formed the largest spacecraft in orbit at the time. The missions to Mir included the first on-orbit U.S. crew exchanges, now a common occurrence on the International Space Station. On STS-79, the fourth docking mission, Atlantis ferried astronaut Shannon Lucid back to Earth after her record-setting 188 days in orbit aboard Mir.

In recent years, Atlantis has delivered several vital components to the space station, including the U.S. laboratory module, Destiny; the Quest Joint Airlock and multiple sections of the Integrated Truss structure that make up the station's backbone.

Atlantis construction milestones

- Jan. 29, 1979 - Contract award for Atlantis
- March 30, 1980 - Start structural assembly of crew module
- Nov. 23, 1981 - Start structural assembly of aft-fuselage
- June 13, 1983 - Wings arrive at Palmdale from Grumman
- Dec. 2, 1983 - Start of final assembly
- April 10, 1984 - Completed final assembly
- March 6, 1985 - Rollout from Palmdale
- April 3, 1985 - Overland transport from Palmdale to Edwards
- April 13, 1985 - Delivery to Kennedy Space Center
- Sept. 12, 1985 - Flight readiness firing
- Oct. 3, 1985 - First flight (STS 51-J)

Upgrades and features

By early 2005, Atlantis had undergone two overhauls known as orbiter maintenance down periods. Some of the most significant upgrades and new features included:

- Installation of the drag chute
- New plumbing lines and electrical connections configuring the orbiter for extended duration missions
- New insulation for the main landing gear doors
- Improved nose wheel steering
- Preparations for the Mir Orbiter Docking System unit, later installed at Kennedy
- Installation of the International Space Station airlock and Orbiter Docking System
- Installation of the Multifunction Electronic Display System, or "glass cockpit"

For more information about space shuttle Atlantis, visit http://www.nasa.gov/centers/kennedy/shuttleoperations/orbiters/atlantis-info.html.

Enrich your science knowledge through NASA's 'Summer Science Camp'

Looking for a way to expand your science knowledge? Have we got a summer camp for you!

NASA scientists and experts have created an eight-week live Web chat series called "Summer Science Camp" to celebrate 2010 as a "Summer of Innovation." Beginning June 10, you can log in every Thursday from 2 to 3 p.m. CDT, and get answers to your questions from NASA scientists at http://www1.nasa.gov/connect/chat/summer_science_chat.html#. Hurricanes and extreme life forms are just two of the many exciting topics.

Check back on this Web page periodically to get links and other information. See you at camp!

Winners of NASA Student Launch Projects named

By Rick Smith

NASA has named the top university winners in the 2009-10 NASA Student Launch Projects, the annual rocketry challenge designed to inspire and encourage a tech-savvy, "sky-minded" new generation of American engineers and scientists.

The student team from the University of Alabama in Huntsville won first place in the challenge. Competitors from Mississippi State University near Starkville, and North Carolina State University in Raleigh won the second- and third-place awards, respectively. North Carolina State University, participating for the first time this year, also was named Rookie Team of the Year. Eighteen college and university teams vied for the top award.

The NASA rocketry challenge, organized by the Marshall Space Flight Center's Academic Affairs Office, tasks student teams to design and build reusable rockets that can carry working science payloads to an altitude of 1 mile and return them safely to Earth. The challenge – which includes the college and university competition and a non-competitive division for middle school and high school students – is designed to inspire participants to think like NASA scientists and engineers, and pursue careers in technical fields such as science, technology, engineering and mathematics.

This year's challenge concluded with a launch event in Toney, Ala., in April. Competition judges from the Marshall Center evaluated each student team's rocket design, flight data, website and final written report. The winning University of Alabama in Huntsville team will receive $5,000 from ATK Aerospace Systems of Magna, Utah, which sponsored the event.

The winning University of Alabama in Huntsville rocket soars to victory.

"The talents and ambitions of these student rocketeers are sky-high," said Tammy Rowan, manager of Marshall's Academic Affairs Office. "Every year, we see more sophisticated launch vehicles, more complex science payloads and more enthusiastic participants. The future of American space exploration will be in good hands in years to come."

For additional information about the launch challenge, visit http://www.nasa.gov/centers/marshall/news/news/releases/2010/10-037.html. Archived video of the entire launch event is available on Ustream at http://www.ustream.tv/channel/marshall-space-flight-center.

Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

Team members from the University of Alabama in Huntsville urge their rocket to a first-place win in the 2009-10 NASA Student Launch Projects rocketry challenge.

FASTSAT *Continued from page 1*

July to the launch complex in Kodiak, Alaska. FASTSAT is scheduled to launch no earlier than Sept. 1.

Mission operations for FASTSAT and all six experiments will be managed from the newly configured small satellite control room at the Huntsville Operations and Science Control Center at the Marshall Space Flight Center.

"An outstanding team of engineers and scientists worked diligently to get us to this milestone," said FASTSAT Project Manager Mark Boudreaux at the Marshall Center. "We are ready to perform the remaining activities, ship the spacecraft to Alaska and integrate FASTSAT on the launch vehicle."

FASTSAT will be flying on the STP-S26 mission – a joint activity between NASA and the U.S. Department of Defense Space Test Program, or DoD STP. FASTSAT and all of its six experiments flying on the STP-S26 multi-spacecraft/payload mission have been approved by the Department of Defense Space and Experiments Review Board.

"The outstanding work and accomplishments from the FASTSAT Team illustrate joint activities at their finest," said U.S. Air Force Col. Stephen D. Hargis, DoD STP director at Kirtland Air Force Base, N.M. "This is a clear example of what is possible when NASA and the Air Force put their minds together for a common goal … mission success and maximizing access to space."

NASA engineers inspect the Fast, Affordable, Science and Technology Satellite, or FASTSAT, after successfully completing a comprehensive pre-shipment review.

One of the six experiments on the FASTSAT bus, NanoSail-D, is designed to demonstrate deployment of a compact solar sail boom system that could lead to further development of this alternate propulsion technology and FASTSAT's ability to eject a nanosatellite from a microsatellite – while avoiding re-contact with the FASTSAT satellite bus. NanoSail-D, managed by the Marshall Center, will be the first NASA solar sail deployed in low-Earth orbit. It was designed and built by NASA engineers at Marshall in collaboration with the Nanosatellite Missions Office at NASA's Ames Research Center in Moffett Field, Calif. This experiment is a combined effort between the U.S. Army Space and Missile Defense Command and the Von Braun Center for Science & Innovation, both located in Huntsville, and NASA.

The other two technology experiments include the Threat Detection System and the Miniature Star Tracker, both managed by the Air Force Research Laboratory at Kirtland Air Force Base.

In addition, the spacecraft carries three atmospheric instruments built at NASA's Goddard Space Flight Center in Greenbelt, Md., in partnership with the U.S. Naval Academy in Annapolis, Md. The instruments include the Thermosphere Temperature Imager, designed to measure the temperature, atomic oxygen and molecular nitrogen densities of the thermosphere; the Miniature Imager for Neutral Ionospheric Atoms and Magnetospheric Electrons, a low-energy neutral atom imager that will detect neutral atoms formed in the plasma population of the Earth's outer atmosphere to improve global space weather prediction; and the Plasma and Impedence Spectrum Analyzer, a device that will test a new measurement technique for the temperature and density of thermal electrons in the ionosphere – which can interfere with radio-based communications and navigation.

The satellite was designed, developed and tested at the Marshall Center in partnership with the Von Braun Center for Science & Innovation and Dynetics Inc. of Huntsville. Dynetics provided key engineering, manufacturing and ground operations support for the new microsatellite. Thirteen local firms, as well as the University of Alabama in Huntsville, were also part of the project team.

Newton is a public affairs officer in the Office of Strategic Analysis & Communications.

'Feds Feed Families' campaign under way

This summer, Marshall Space Flight Center team members are encouraged to participate in the "Feds Feed Families" campaign – a nationwide effort by federal agencies to collect 1.2 million pounds of non-perishable food items for those in need.

The food drive is intended to serve local communities. All Marshall Center donations will be delivered to the Madison County non-profit organization Christmas Charities Year Round for distribution.

Marshall's Office of Human Capital is challenging the center work force – together with team members at NASA's Michoud Assembly Facility in New Orleans – to donate a combined 6,350 pounds of canned goods and other non-perishable food items. No money will be collected for the campaign.

Organizers also will identify a charitable organization in the New Orleans area for items collected at Michoud.

Food donation boxes will be placed in Buildings 4200, 4203, 4600, 4601, 4708, 4487 and 4666, and at the National Space Science & Technology Center. Contributions will be collected June 29, July 29 and Aug. 30.

Team members also are encouraged to bring items for donation to the Marshall Employee Family Picnic on June 12.

Feds Feed Families was launched in 2009 by federal agencies in Washington, responding to shortages at food banks across the nation's capital. One million pounds of food were collected to serve the needs of the District of Columbia metro area during that initial drive.

Additional campaign details will appear on Inside Marshall and future issues of The Marshall Star. For more information, call Cindy Spidel at 544-0144 or visit http://www.fedsfeedfamilies.gov.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, June 17, is 4:30 p.m. Thursday, June 10.

Miscellaneous

Metal stakes, 1-inch angle, 4 feet in length, $1 each. 895-9520

XL dog kennel, can deliver to Arsenal, $45. 990-3561

Sofa and love seat, light brown (mushroom), http://www.furniturerow.com/SofaMart/Riley-Sofa-Group/Riley-Sofa/prod531026/, $800. 503-7327

Round oak table, four chairs, pantry, $125. 444-7917

Norwalk sofa, matching love seat, sage green, $300. 883-5168

Oak/marble top tables, color TV, leather sofa, chair, bookcases. 603-0894

Lenox Montclair fine china, eight place settings, other pieces, $400. 503-5910

AKC yellow Lab puppies, large, block-headed, parents on premises, $150-$250. 651-3802

Elliptical trainer, $350; dumbbell set, stand, $400; rowing machine, $500; all $1,000. 679-0188

Hitachi 60-inch floor model projection screen TV, $200. 468-7265

Dark wood changing table, drawer, shelves, changing pad, organizer, $50. 337-4861

Delta heavy duty small truck bed tool box, $150. 830-6584

Playstation 3 game, Little BIG Planet, Game of the Year edition, $30. 828-1234

Acoustic guitar, Seagull S6 Original, $325; Fender G-DEC 30 Guitar Amp, midi cable/software, $175. 550-0511

Cherry entertainment center, 5'X6', $75; high-back cloth Samsonite office chair, $50. 527-3486

Riding mower, $375. 714-9711

Revere Copperware, various pieces, vintage, signature bottom, $20 piece. 464-5850

Linksys wireless system, one WRT54G router, two WUSB54G adapters, $50. 865-548-4277

Vehicles

2007 Kawasaki ZX6R Ninja, black, extras, 3k miles, $6,500 obo. 714-3431

2001 Ford Windstar, ABS, AC/heat, captain chairs, CD, cruise, 97k miles, $4,395. 715-0412

2001 Harley Super Glide FXDXT, wine/black, SE pipes, more, 10k miles, $9,000. 464-9871

2000 Jeep Grand Cherokee Limited, white, 4WD, loaded, $5,000. 425-1762

1998 GMC LWB pickup, white, 176k miles, $4,500. 468-9377

1995 Volvo GLT, leather, side airbags, ABS, 173k miles, $2,000. 527-6655

1990 Blue Toyota extended cab, 4WD, toolbox, bedmat, 167k miles, $3,500. 931-307-9426

1988 Toyota Corolla, 4-door, auto, air, 101k miles, $2,400. 227-0339

Wanted

Murray 14hp Vtwin 42-inch riding mower, functional or not. 723-8877

Houses/offices to clean, available evenings/weekends. 777-8595 leave message

Used medium wire dog crate. 990-3561

Horse bridle, snaffle bit. 468-8177

All types of brick/masonry work, licensed/insured brick mason. 698-8232

Found

Digital watch, nylon and velcro band, south parking lot of Building 4200, May 27; set of car keys, "Barbara" on the key chain, east end of second floor of Building 4200, June 1. 544-4680

Carpool

NW Huntsville to/from Building 4601, hours negotiable, willing to pay for ride. 615-207-5465

Ares Projects team honors members at awards luncheon

The Marshall Space Flight Center's Ares Projects recognized more than 1,100 team members with group and individual awards at its annual awards celebration June 4. Daryl Woods, standing, with the Ares Projects Integration Office, chats with some of the more than 450 people attending the luncheon in Marshall's Activities Building 4316. The event paid tribute to employees and contractor team members across the country who contributed to the Ares Projects' many successes during the past year.

Emmett Given/MSFC

Steve Davis, right, deputy manager of the Ares I-X Test Flight Project at the Marshall Center, accepts the Spotlight Achievement Award on behalf of the Ares I-X team. Presented by Teresa Vanhooser, left, manager for Ares Projects at Marshall, the award recognizes the successful Ares I-X flight in October 2009, which achieved all of its primary mission objectives.

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